

REMARKS

Claims 1, 2, 5, and 6, as amended, are pending herein, claims 3, 4, 7, and 8 having been canceled.

1. Claims 1-8 were rejected under §103(a) as obvious over the Sasaki et al Japanese patent No. 08-177597 ("SASAKI").

Parent claims 1 and 5 have been amended to limit the invention to the embodiment shown in Fig. 4 wherein both a shutter 40 for opening and closing a port and a butterfly valve 42 for opening and closing an intake air return passage are provided. The butterfly valve is operable in a multi-step fashion to vary the opening angle thereof in accordance with the detected engine operating condition.

More particularly, the claimed invention is characterized in that the opening angle of the intake air return passage is controlled in multi-step fashion by the shutter and the butterfly valve. That is to say, the intake air return passage is opened or closed by the shutter, while controlling whether an intake air flowing area is increased or decreased by the butterfly valve. Thus, the accuracy required for the shutter and the butterfly valve is lower when compared with a device in which the opening angle of the intake air return passage is controlled by one valve body. Therefore, it is possible to reduce the cost of the device. This is further described in the specification in the paragraph bridging pages 7 and 8.

On the other hand, SASAKI discloses a device for opening a bypass passage of a supercharger at a low load for the purpose of preventing a loss of energy which drives the supercharger, provided that a mechanical supercharger is used, that is a boost return technique in the present invention. However, since the opening angle of the bypass passage is controlled by a single poppet valve in SASAKI et al, the operating accuracy required for the poppet valve and a valve sheet thereof becomes higher, resulting in high cost.

Moreover, SASAKI does not provide a direct or indirect description on the technical idea which is the essential part of the present invention in which the bypass passage is opened or closed by the shutter and also the opening angle thereof is controlled in multi-step fashion by the butterfly valve. Nor does SASAKI suggest such a construction.

Regarding claims 2 and 6, SASAKI et al discloses a device for controlling the opening angle of the bypass valve disposed in the bypass passage so that the intake pressure on the downstream side of the supercharger reaches the target pressure. However, since such a device intends to prevent a loss of the energy which drives the mechanical supercharger, it is unnecessary to consider the exhaust pressure in the exhaust passage.

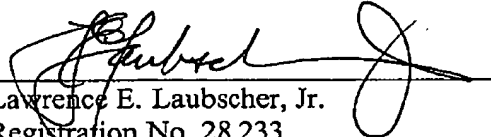
Consequently, controlling the opening angle in the bypass passage based on the differential pressure between the exhaust pressure and the negative pressure is not suggested by SASAKI.

For all the foregoing reasons, there is no disclosure or teaching in SASAKI which discloses or teaches anything which would have suggested applicant's presently claimed invention to one of ordinary skill in the art. Accordingly, reconsideration and withdrawal of the rejection under §103(a) are respectfully requested.

Allowance of claims 1, 2, 5, and 6 is courteously solicited.

Respectfully submitted,

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Lawrence E. Laubscher, Jr.  
Registration No. 28,233  
1160 Spa Road, Suite 2B  
Annapolis, MD 21403  
Telephone: (410) 280-6608

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